



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/707,390	12/10/2003	Mark Andrew Lillis	PES-0183	1389

7590
Philmore H. Colburn II
Cantor Colburn LLP
55 Griffin Road South
Bloomfield, CT 06002

12/20/2006

EXAMINER

SCHNEIDER, CRAIG M

ART UNIT	PAPER NUMBER
----------	--------------

3753

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/20/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/707,390	Applicant(s) LILLIS, MARK ANDREW	
	Examiner Craig M. Schneider	Art Unit 3753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 November 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7, 9-27, and 31-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7, 16-27 and 32 is/are allowed.
- 6) ☒ Claim(s) 1-6, 9-15 and 31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/8/2006 has been entered.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Claims 1, 13-15, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujita (US2002/0428502) in view of Dowdall (4,958,659).

Fujita discloses a gas regulation system (20) comprising a manifold (the piping 40 and to each block valve 42, 44, 46, and 48), a plurality of control modules (42, 44, 46, and 48) in fluid communication with the manifold, wherein each control module comprises an actuable valve in fluid communication with an associated gas storage device (22, 24, 26, and 28), and a power source (60) in electrical communication with each of the actuable valves. The power source is "configured to" prevent simultaneous actuation of multiple valves because it is not only capable of actuating one valve at a time. Fujita implicitly discloses that only one valve is actuated in certain modes; thus actuation of the other valves is prevented in those modes. The power source is

Art Unit: 3753

"adapted to prevent..." because there are separate actuation signals sent to each of the valves (see Fig. 1) and there is a mode in which the valves are actuated one at a time which inherently prevents the actuation of the other valves. Fujita does not disclose a housing. Dowdall discloses that an enclosure would be used for protection from the environment (col. 1, lines 4-13).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize an enclosure as taught by Dowdall onto the system of Fujita, in order to protect the equipment.

Regarding claim 13, the system comprising an electrochemical cell system in fluid communication with the manifold, wherein the electrochemical cell system comprises a fuel cell (page 1, paragraph 13).

Regarding claim 14, wherein the power source is in electrical communication with a manifold controller adapted to provide operational logic to each of the circuits of the actuatable valves.

Regarding claim 15, wherein the gas is a hydrogen gas (page 1, paragraph 2).

Regarding claim 31, wherein each one of the control modules further comprise one or more of gas connectors (32, 34, 36, and 38 and 40 to each of the modules) and electrical connectors (the dashed line to 43, 45, 47, 49 from 60).

4. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujita/Dowdall as applied to claim 1 above, and further in view of Agricola et al. (US2002/0134342).

Art Unit: 3753

Fujita/Dowdall disclose all the features of the claimed invention except that the system comprises a directional pressure-reducing device disposed between the manifold and the control module. Agricola et al. disclose that the pressure reducing valve (7) is disposed between the manifold (1) and the control valves (8 and 9)(page 1, paragraph 17).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the pressure reducing valve as disclosed by Agricola et al. onto the system of Fujita/Dowdall, in order to provide the gas at the required working pressure for the components.

5. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujita/Dowdall as applied to claim 1 above, and further in view of Takeda et al. (US2002/0092575).

Fujita/Dowdall disclose all the features of the claimed invention except that the system comprises a directional pressure-reducing device disposed between the control module and the gas storage device. Takeda et al. disclose that the pressure reducing valve is disposed immediately outside the gas storage device.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the pressure reducing valve of Takeda et al. onto the system of Fujita/Dowdall, in order to reduce the pressure of the gas to a workable pressure.

6. Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujita as applied to claim 1 above, and further in view of Belcher, Jr. (2,793,813).

Art Unit: 3753

Fujita discloses all the features of the claimed invention except that the gas regulation system further comprises an impedance safety monitor device in electrical communication with the power source. Belcher, Jr. discloses the use of an impedance device to take the place of a sensing element in a control circuit that would sense the condition of the system and further has a shut down component (col. 1, lines 56-64).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the impedance device of Belcher, Jr. onto the system of Fujita, in order to have a sensing element that could shut down the system if a problem occurred.

7. Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujita/Dowdall.

The examiner takes official notice that the use of an impedance safety monitor device is old and well known in the art and would be combined with the device of Fujita/Dowdall for reasons that old and well known in the art.

8. Claims 6 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujita/Dowdall as applied to claim 1 above, and further in view of Petite et al. (US2002/0125998).

Fujita/Dowdall discloses all the features of the claimed invention except that the control modules further comprise a local control-processing unit in electrical communication with a manifold controller. Petite et al. disclose the use of a central controller (130) and a local controller (110)(page 3, paragraph 42).

Art Unit: 3753

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the local controllers of Petite et al. onto the system of Fujita/Dowdall, in order to have control of the system local to the system.

Regarding claim 11, the system comprising a test module in electrical communication with the manifold controller (page 2, paragraph 16-17).

9. Claims 6 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujita/Dowdall.

The examiner takes official notice that the use of an impedance safety monitor device is old and well known in the art and would be combined with the device of Fujita for reasons that old and well known in the art.

Regarding claim 11, the system comprising a test module in electrical communication with the manifold controller (page 2, paragraph 16-17).

10. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujita/Dowdall as applied to claim 1 above, and further in view of Watson (3,322,135).

Fujita/Dowdall discloses all the features of the claimed invention except that the actuatable valves comprise a solenoid valve. Watson discloses solenoid valves (23) on the discharge side of tanks (col. 4, lines 47-50).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the solenoid valves as disclosed by Watson onto the actuatable valve of Fujita/Dowdall, in order to utilize more cost effective valves.

11. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujita-Dowdall-Agricola et al. as applied to claim 2 above, and further in view of Takeda et al..

Fujita-Dowdall-Agricola et al. disclose all the features of the claimed invention except that the pressure reducing valve comprises a check valve adapted to provide a substantially unimpeded flow of a gas from the manifold to the control modules. Takeda et al. disclose a valve structure that includes both a pressure reducing valve (21 and 22) and a check valve (32) as seen in Figures 2 and 3 which is adapted to provide a substantially unimpeded flow of a gas (page 3, paragraph 45).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the check valve/pressure reducing valve combination as disclosed by Takeda et al. onto the system of Fujita-Dowdall-Agricola et al., in order to have the uninhibited flow of gas into the cylinders.

12. Claims 1, 10, 14, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over McJones (3,719,196) in view of Fujita and further in view of Dowdall.

McJones discloses a gas regulation system comprising a manifold (62), a plurality of control modules (20, 22, and 24) in fluid communication with the manifold (col. 5, lines 1-6), wherein each control module comprises an actuatable valve in fluid communication with an associated gas storage device (14, 16, and 18)(col. 3, line 63 to col. 4, line 7) and that more than one valve will not be actuated at a time (col. 2, lines 9-12). McJones does not disclose a power source in electrical communication with each of the actuatable valves. Fujita discloses the use of a power source for controlling the actuatable valves and also that the valves are electrical. McJones/Fujita do not disclose a housing. Dowdall discloses that an enclosure would be used for protection from the environment (col. 1, lines 4-13).

Art Unit: 3753

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the electrical controls and the electrically actuable valves of Fujita onto the system of McJones, in order to electrically actuate the valves.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize an enclosure as taught by Dowdall onto the system of McJones/Fujita, in order to protect the equipment.

Regarding claim 10, McJones discloses the serial circuits and modifying it in view of Fujita would have electrical circuits in series.

Regarding claim 14, wherein the power source is in electrical communication with a manifold controller adapted to provide operational logic to each of the circuits of the actuable valves.

Regarding claim 31, wherein each one of the control modules further comprise one or more of gas connectors (32, 34, 36, and 38 and 40 to each of the modules) and electrical connectors (the dashed line to 43, 45, 47, 49 from 60).

13. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over McJones/Fujita/Dowdall as applied to claim 1 above, and further in view of Agricola et al. (US2002/0134342).

McJones/Fujita/Dowdall disclose all the features of the claimed invention except that the system comprises a directional pressure-reducing device disposed between the manifold and the control module. Agricola et al. disclose that the pressure reducing valve (7) is disposed between the manifold (1) and the control valves (8 and 9)(page 1, paragraph 17).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the pressure reducing valve as disclosed by Agricola et al. onto the system of McJones/Fujita/Dowdall, in order to provide the gas at the required working pressure for the components.

14. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over McJones/Fujita/Dowdall as applied to claim 1 above, and further in view of Takeda et al. (US2002/0092575).

McJones/Fujita/Dowdall disclose all the features of the claimed invention except that the system comprises a directional pressure-reducing device disposed between the control module and the gas storage device. Takeda et al. disclose that the pressure reducing valve is disposed immediately outside the gas storage device.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the pressure reducing valve of Takeda et al. onto the system of McJones/Fujita/Dowdall, in order to reduce the pressure of the gas to a workable pressure.

15. Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over McJones/Fujita/Dowdall as applied to claim 1 above, and further in view of Belcher, Jr. (2,793,813).

McJones/Fujita/Dowdall disclose all the features of the claimed invention except that the gas regulation system further comprises an impedance safety monitor device in electrical communication with the power source. Belcher, Jr. discloses the use of an impedance device to take the place of a sensing element in a control circuit that would

Art Unit: 3753

sense the condition of the system and further has a shut down component (col. 1, lines 56-64).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the impedance device of Belcher, Jr. onto the system of McJones/Fujita/Dowdall, in order to have more control of the system.

16. Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over McJones/Fujita/Dowdall.

The examiner takes official notice that the use of an impedance safety monitor device is old and well known in the art and would be combined with the device of Fujita for reasons that old and well known in the art.

17. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over McJones/Fujita/Dowdall as applied to claim 1 above, and further in view of Petite et al. (US2002/0125998).

McJones/Fujita/Dowdall disclose all the features of the claimed invention except that the control modules further comprise a local control-processing unit in electrical communication with a manifold controller. Petite et al. disclose the use of a central controller (130) and a local controller (110)(page 3, paragraph 42).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the local controllers of Petite et al. onto the system of McJones/Fujita/Dowdall, in order to add more control to the system.

18. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over McJones/Fujita/Dowdall.

Art Unit: 3753

The examiner takes official notice that the use of an impedance safety monitor device is old and well known in the art and would be combined with the device of McJones/Fujita/Dowdall for reasons that old and well known in the art.

19. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over McJones/Fujita/Dowdall as applied to claim 1 above, and further in view of Watson (3,322,135).

McJones/Fujita/Dowdall disclose all the features of the claimed invention except that the actuatable valves comprise a solenoid valve. Watson discloses solenoid valves (23) on the discharge side of tanks (col. 4, lines 47-50).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the solenoid valves as disclosed by Watson onto the actuatable valve of McJones/Fujita/Dowdall, in order to utilize more cost effective valves.

20. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over McJones-Fujita-Dowdall-Agricola et al. as applied to claim 2 above, and further in view of Takeda et al..

McJones-Fujita-Dowdall-Agricola et al. disclose all the features of the claimed invention except that the pressure reducing valve comprises a check valve adapted to provide a substantially unimpeded flow of a gas from the manifold to the control modules. Takeda et al. disclose a valve structure that includes both a pressure reducing valve (21 and 22) and a check valve (32) as seen in Figures 2 and 3 which is adapted to provide a substantially unimpeded flow of a gas (page 3, paragraph 45).

Art Unit: 3753

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the check valve/pressure reducing valve combination as disclosed by Takeda et al. onto the system of McJones-Fujita-Dowdall-Agricola et al., in order to have the uninhibited flow of gas into the cylinders.

21. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over McJones/Fujita/Dowdall as applied to claim 1 above, and further in view of Fujita.

McJones/Fujita/Dowdall does not disclose that the system further comprises an electrochemical cell system in fluid communication with the manifold. Fujita discloses using the system with a fuel cell (page 1, paragraph 13).

It would have been obvious to one having ordinary skill in the art to utilize the system of McJones/Fujita/Dowdall with a fuel cell as taught by Fujita, in order to improve the marketability of the system.

22. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over McJones/Fujita/Dowdall as applied to claim 1 above, and further in view of Fujita.

McJones/Fujita/Dowdall discloses all the features of the claimed invention except that the system is being used with hydrogen gas. Fujita discloses that the system is being used with hydrogen (page 1, paragraph 2).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the McJones/Fujita/Dowdall system with hydrogen gas as taught by Fujita, in order to improve the marketability of the system.

Allowable Subject Matter

23. Claims 7, 16-27, and 32 are allowed.

Response to Arguments

24. Applicant's arguments filed 11/8/2006 have been fully considered but they are not persuasive. Regarding claim 1, the applicant is arguing that the prior art of Fujita does not only open one valve at a time and that more than one valve can function at one time. The term "configured to" does not specifically define that the system can only have one valve functioning at a time. The system of Fujita can function with only one valve operating at a time therefore the prior art meets the scope of the claim even though Fujita can function with more than one valve actuating at a time. The power source is "configured to prevent..." because there are separate actuation signals sent to each of the valves (see Fig. 1) and there is a mode in which the valves are actuated one at a time which inherently prevents the actuation of the others.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Craig M. Schneider whose telephone number is (571) 272-3607. The examiner can normally be reached on M-F 8:30 -5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eric Keasel can be reached on (571) 272-4929. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3753

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CMS *CMV*
December 8, 2006



ERIC KEASEL
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700